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ABSTRACT

A series of statistical analyses was conducted of institutional and departmental trends in women's graduate enrollment and employment in science and engineering in the 50 leading doctorate-granting institutions. Site visits to a diverse group of nine selected institutions were conducted. The schools were selected to be representative of the total sample of 50 institutions. The site visits allowed probing behind the statistical data in order to understand more fully the institutional and departmental processes involved in the employment, retention, and advancement of women scientists. The findings from the site visits are discussed. Interviews were conducted with administrators, faculty, and graduate students in the following fields: engineering, physical sciences, environmental sciences, mathematical sciences, life sciences, psychology, and social sciences. Following the national figures, the percentage of women employed in science and engineering fields within the schools visited, as well as within the 50 schools, is 16 percent. Women in psychology is 22 percent, the life sciences 20 percent, and the social sciences 4.6 percent, and in the physical sciences 6.0 percent. Other information is presented and analyzed and statistical tables are included. (SW)

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RESPONSIVENESS VS. RESOURCES: THE IMPLEMENTATION AND IMPACT OF AFFIRMATIVE ACTION PROGRAMS FOR WOMEN SCIENTISTS IN POSTSECONDARY EDUCATION

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Introduction

Since the late 1960s, dramatic changes in the role and status of women have taken place. Increasing numbers of women of all ages and backgrounds have entered higher education, completed their degrees and joined the labor force. The overall number of women enrolling in four year colleges and universities has increased steadily and by 1978, women comprised 49 percent of the total undergraduate enrollment in the United States.[1] Women earned 43 percent of the degrees awarded in 1974-75. The actual number of degrees awarded to women, more than doubled -- from 664,000 in 1964-65 to 1,305,000.[2]

At the graduate level, the figures are even more impressive. The percentage of women receiving doctorates nationally increased steadily from about 10 percent in 1955 to almost 13 percent in 1968 and 18 percent in 1973 to an all-time high of over 23 percent in 1976.[3] The number of women receiving doctorates in science and engineering alone jumped from about 750 in 1965 (7%) to nearly 3,000 (17%) in 1976.[4]

Stimulated in great part by the women's movement, women entered colleges and universities with a heightened awareness of the increased opportunities and options available to them. But, without question, it was affirmative action that ushered in a new era in the move toward equality. Broadly speaking, affirmative action refers to conscious (and conscientious) efforts not only to end discrimination but to remedy the negative effects of past discrimination by developing recruiting

procedures aimed at women and minorities and providing equal opportunities for their advancement. Active recruitment programs were initiated to increase women's participation as graduate students, as faculty and as active members of professional committees and organizations.

In spite of all these efforts, however, the evidence is that while federal legislation and affirmative action may be an effective force in reducing discrimination, it has not had a significant impact upon the numbers of women in academe and this is particularly true in the case of academic women scientists. The number of women employed on the facultys of colleges and universities today is very small. Of the 289,048 full-time faculty reported for 1975-76, only 24 percent were women. Yet, during the period 1929-1940, women comprised 27 percent of the postsecondary faculty in the United States.[5] The portrait of academic women scientists is even worse. In spite of the tremendous gains in the numbers of women receiving doctorates in science, the proportion of women scientists employed full-time in academic institutions increased only 1 percentage point since 1974 -- from 15 to 16 percent.[6]

Academic women are still clustered in the lower professorial ranks. They hold 41 percent of the instructor positions, 40 percent of the lectureships and 29 percent of the assistant professor positions, but only 17 percent of the associate professorships and 10 percent of the full professorships and this

situation is not much different than it was twenty years ago. In 1959-60, women held nearly 10 percent of the full professorships and almost 9 percent of the faculty at that rank in 1965-66.[7] Why has there been so little improvement in the proportions of women in academe? Why has there not been a significant increase in the numbers of academic women in light of the expanded federal legislation on equal opportunity and university programs for affirmative action?

With the assistance of two grants from the National Science Foundation (NSF), the Evaluation and Training Institute (ETI) designed a study to address these questions and to provide insight into the problems, issues and trends of women scientists in academe. The principal data sources for the study were the National Science Foundation's annual surveys of Scientific and Engineering Personnel Employed at Universities and Colleges (FY 1974-76) collected annually from about 2,300 institutions including two-year colleges which offer degree-credit courses in the sciences and engineering and the surveys of Graduate Science Student Support and Postdoctorals (FY 1974-76) collected annually from 7,771 departments in approximately 361 doctorate granting institutions.

The study consisted of two parts -- a series of statistical analyses of institutional and departmental trends in women's

graduate enrollment and employment in science and engineering in the 50 leading doctorate granting institutions -- those reporting the largest full-time scientist and engineering population on the 1976 NSF Survey of personnel -- and a discussion of findings from site visits to a diverse group of 9 institutions selected to provide diversity by geographic location, urban/rural environment, institutional size, type of control (public/private) and proportion of women scientists employed. The schools were Northwestern University, Purdue University, University of Arizona, University of Washington, Louisiana State University (Baton Rouge), Texas A & M, University of Southern California, University of Michigan and Harvard University(Table 1). Four schools are private; five are public. Four are in rural-type environments; five are urban. Three institutions are classified as large, 4 as medium and 2 as small, based on size of student body. In terms of the size of the science population, two are considered small, 3 as medium and 4 as large. Three are in the west, 3 in the midwest, 2 in the south and 2 in the east. That our sampling selection process was valid and the case study sample representative of the total sample of 50 institutions was amply demonstrated by the fact that the overall statistics for the site visit schools are exactly the same as those for the 50 schools and the breakdowns by fields are within a percentage point.

The site visits allowed us to probe behind the statistical data in order to understand more fully the institutional and departmental processes involved in the employment, retention and advancement of women scientists. Some of the results of this

TABLE 1 SITE VISIT INSTITUTIONS SORTED BY GEOGRAPHIC REGION, TYPE OF CONTROL, SIZE OF SCIENCE AND ENGINEERING POPULATION AND PERCENTAGE OF FULL-TIME WOMEN SCIENTISTS AND ENGINEERS, 1976

% WOMEN SCIENTISTS & ENGINEERS EMPLOYED FULL-TIME	WEST	MID-WEST	SOUTH	EAST
OVER 20%	U. OF WASHINGTON LARGE - PUBLIC	U. OF MICHIGAN LARGE - PUBLIC		
OVER 15%	U. OF SO. CALIFORNIA SMALL - PRIVATE		LOUISIANA STATE U. LARGE - PUBLIC	
OVER 10%				HARVARD U. LARGE - PRIVATE
OVER 5%	U. OF ARIZONA MEDIUM - PUBLIC	NORTHWESTERN U. SMALL - PRIVATE		
BELOW 5%		PURDUE U. SMALL - PUBLIC	TEXAS A&M U. LARGE - PUBLIC	

SOURCE: Evaluation and Training Institute and National Science Foundation

probing are startling and the implications considerable. Thus, the focus of this presentation will be on the site visit institutions and the findings gathered from interviews with the graduate deans, department chairs, faculty, research staff and graduate students in a variety of disciplines in the 7 major scientific fields defined by NSF: Engineering, Physical Sciences, Environmental Sciences, Mathematical Sciences, Life Sciences, Psychology and Social Sciences.

The Site Visits

The site visits were conducted in the following manner. First, as soon as the site sample selection process was completed, a two-page letter describing the purposes and methodology of the study was sent to the graduate dean at each campus with a carbon copy to the President, Provost or Chancellor. In addition to the description of the study, we requested that the dean appoint a person to act as a liaison and help set up the site visit schedule and contact the appropriate persons from the various departments. The deans sent us the names of the liaisons on a self-addressed, stamped postcard that we included with the letter and all contact from then on was with the liaisons. We did not request any data from institutions or departments beforehand, although several voluntarily brought data to the interview sessions. We brought with us each institution's employment and graduate enrollment profile for 1976 and 1977(Tables 2 and 3), summary profiles of the 50 institutions and graduate and employment profile summaries for the 9 site visit campuses.

The liaisons proved to be well organized and extremely helpful on every campus. The 2 and ½ day site visits usually began with an orientation meeting with the liaison and at least

TABLE 2 COLLEGE PROFILE OF WOMEN SCIENTISTS EMPLOYED FULL-TIME IN SCIENCE FIELDS, INSTITUTION X, 1976 and 1977

FIELD OF EMPLOYMENT	1976				1977			
	TOTAL	MEN	WOMEN	%WOMEN	TOTAL	MEN	WOMEN	%WOMEN
ALL ENGINEERS	131	130	1	0.8	133	131	2	1.5
Aero. & Astro.	-	-	-	-	-	-	-	-
Chemical	15	15	-	-	18	17	1	5.6
Civil	32	32	-	-	35	35	-	-
Electronic	28	28	-	-	30	30	-	-
Mechanical	11	11	-	-	15	15	-	-
Other Eng.	45	44	1	2.2	35	34	1	2.9
ALL PHYSICAL SCIENCE	103	100	3	2.9	106	103	3	2.8
Chemistry	55	52	3	5.5	55	55	-	-
Physics	44	44	-	-	46	43	3	6.5
Other	4	4	-	-	5	5	-	-
ALL ENVIRON. SCIENCE	13	13	-	-	15	15	-	-
Earth Science	12	12	-	-	14	14	-	-
Atmospheric Science	-	-	-	-	-	-	-	-
Oceanography	1	1	-	-	1	1	-	-
ALL MATH. SCIENCES	81	81	-	-	83	81	2	2.4
Mathematics	62	62	-	-	62	60	2	3.2
Computer Science	19	19	-	-	21	21	-	-
ALL LIFE SCIENCES	379	313	66	17.4	386	327	59	15.3
Agric. Science	-	-	-	-	18	18	-	-
Biological Science	104	85	19	18.3	104	84	20	19.2
Medical Science	275	228	47	17.1	264	225	39	14.8
ALL PSYCHOLOGY	19	14	5	26.3	20	13	7	35.0
ALL SOCIAL SCIENCE	140	127	13	9.3	151	137	14	9.3
Economics	63	61	2	3.2	63	60	3	4.8
Sociology	28	21	7	25.0	37	29	8	21.8
Political Science	28	26	2	7.1	30	29	1	3.3
Other	21	19	2	9.5	21	19	2	9.5
TOTAL	866	778	88	10.2	894	807	87	9.7

SOURCE: National Science Foundation

TABLE 3 COLLEGE PROFILE OF GRADUATE STUDENT ENROLLMENT IN SCIENCE FIELDS, INSTITUTION X, 1975 AND 1976 - NUMBER OF WOMEN AND PERCENT OF TOTAL

	1975				1976			
FIELDS OF SCIENCE	TOTAL	MEN	WOMEN	%WOMEN	TOTAL	MEN	WOMEN	%WOMEN
ENGINEERING	325	304	21	6.5	338	318	20	5.9
PHYSICAL SCIENCE	177	144	33	18.6	152	122	30	19.7
ENVIRONMENTAL SCIENCE	21	18	3	14.3	22	18	4	18.2
MATHEMATICS	95	82	13	13.7	99	89	10	10.1
LIFE SCIENCE	155	95	60	38.7	156	107	49	31.4
MEDICAL SCIENCE	52	28	24	46.2	43	25	18	41.9
PSYCHOLOGY	54	30	24	44.4	52	29	23	44.2
SOCIAL SCIENCE	246	165	81	32.9	208	134	74	35.6
TOTAL	1,125	866	259	23.0	1,070	842	228	21.3

SOURCE: National Science Foundation

a one-hour discussion with the graduate dean, followed by 30 minute to 1 hour individual interviews with the school/department/division dean and department chairs and 30 minute to one-hour group interviews with faculty members and research staff from each department. A one-hour open meeting to which graduate students from all departments in the school were invited usually concluded the sequence of visits for a given school. The same pattern of visits -- dean, department chairs, faculty and professional staff and graduate students -- was repeated throughout the 2 and ½ day visit. In this way, the perceptions and opinions of one group could be balanced against the perceptions and opinions of other constitutencies and other departments. In addition to these people, we also interviewed affirmative action officers and institutional researchers.

At the beginning of the site visits, we reviewed the data we had brought as a stimulus to discussion(Table 5 & 6) and tried to evoke explanations for whatever patterns were unique or statistics that were significantly high or low for a given department. We had not planned to follow a rigid format but to allow topics to be raised spontaneously and to follow in whatever directions seemed most promising. Fortunately, this methodology proved to be a poor choice in that the entire discussion usually became fixed upon whatever differences existed between the departmental records (and/or memories) and the numbers reported for the department on the NSF survey. We say fortunately because it was these "discussions" that led us to two of our most important findings -- the dearth of women scientists in regular tenure track positions

TABLE 5 SUMMARY PROFILE OF WOMEN SCIENTISTS EMPLOYED FULL-TIME IN SITE VISIT INSTITUTIONS, 1976 and 1977

FIELD OF EMPLOYMENT	1976 TOTAL	1976 MEN	1976 WOMEN	1976 %WOMEN	1977 TOTAL	1977 MEN	1977 WOMEN	1977 %WOMEN
ALL ENGINEERS	1695	1658	37	2.2	1747	1708	39	2.2
Aero. & Astro.	110	108	2	1.8	105	104	1	1.0
Chemical	124	121	3	2.4	136	133	3	2.2
Civil	327	324	3	0.9	361	359	2	0.6
Electronic	339	333	6	1.8	339	332	7	2.1
Mechanical	250	249	1	0.4	263	262	1	0.4
Other Eng.	545	523	22	4.0	543	518	25	4.6
ALL PHYSICAL SCIENCE	1394	1310	84	6.0	1438	1340	98	6.8
Chemistry	602	566	36	6.0	638	595	43	6.7
Physics	564	549	15	2.7	567	542	25	4.4
Other	228	195	33	14.5	233	203	30	12.9
ALL ENVIRON. SCIENCE	588	561	27	4.6	563	533	30	5.3
Earth Science	298	283	15	5.0	285	269	16	5.6
Atmospheric Science	105	102	3	2.9	121	118	3	2.5
Oceanography	185	176	9	4.9	157	146	11	7.0
ALL MATH. SCIENCES	766	702	64	8.4	823	747	76	9.2
Mathematics	588	538	50	8.5	606	551	55	9.1
Computer Science	178	164	14	7.9	217	196	21	9.7
ALL LIFE SCIENCES	10,119	8089	2030	20.1	10,065	7993	2072	20.5
Agric. Science	1694	1485	209	12.3	1664	1514	150	9.0
Biological Science	2601	2032	569	21.9	2622	2035	587	22.3
Medical Science	5824	4572	1252	21.5	5779	4444	1335	23.1
ALL PSYCHOLOGY	521	407	114	21.9	532	408	124	23.3
ALL SOCIAL SCIENCE	1782	1517	265	14.9	1829	1534	295	16.1
Economics	470	435	35	7.4	499	473	26	5.2
Sociology	407	308	99	24.3	393	291	102	26.0
Political Science	355	310	45	12.7	378	325	53	14.0
Other	550	464	86	15.6	559	445	114	20.4
TOTAL	16,865	14,244	2621	15.5	16,997	14,263	2734	16.1
FIELD TOTAL - 50 INSTITUTIONS	77,050	64,449	12,601	16.4	74,601	62,126	12,475	16.7

SOURCE: National Science Foundation

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TABLE 6 SUMMARY PROFILE OF WOMEN GRADUATE STUDENTS ENROLLED IN SCIENCE AND ENGINEERING IN SITE VISIT INSTITUTIONS, 1975 AND 1976

FIELDS OF SCIENCE	1975 TOTAL	1975 MEN	1975 WOMEN	1975 %WOMEN	1976 TOTAL	1976 MEN	1976 WOMEN	1976 %WOMEN
ENGINEERING	4300	4101	199	4.8	4560	4332	228	5.0
PHYSICAL SCIENCE	2021	1803	218	10.7	2083	1844	239	11.4
ENVIRONMENTAL SCIENCE	1031	908	123	11.9	1116	936	180	16.1
MATHEMATICS	1164	958	206	17.6	1198	988	210	17.5
LIFE SCIENCE	4400	3400	1000	22.7	4694	3502	1192	25.4
MEDICAL SCIENCE	1221	747	474	38.8	1580	939	641	40.6
PSYCHOLOGY	1295	747	548	42.3	1285	698	587	45.7
SOCIAL SCIENCE	5249	3612	1637	31.1	5533	3674	1859	33.6
TOTAL	20,681	16,276	4405	21.2	22,049	16,913	5136	23.3
FIELD TOTAL - 50 INSTITUTIONS	106,823	81,238	25,585	24.0	110,812	81,794	29,018	26.2

SOURCE: National Science Foundation

and the concentration of them instead in non-academic, non-ladder research scientist appointments.

Following the national figures, the percentage of women employed in science and engineering fields within the site visit schools as well as within the 50 schools was 16 percent. The average proportion of women per individual school was also similar to that of the total sample ranging from a low of 3.2 percent to a high of 27.4 percent (Table 4). The pattern of distribution by field shows the largest proportion of women in psychology (22 percent), the life sciences (20%) and the social sciences (15%). The largest relative gain in academic employment for women since 1974 is in psychology, from 21 to 25 percent, and in the social sciences, from 16 to 18 percent.[8]

At the other end of the spectrum, there are very few women in the traditionally masculine-dominated areas -- 2.2 percent in engineering, 4.6 percent in the environmental sciences and 6.0 percent in the physical sciences.

The purpose of NSF's surveys are to monitor the supply of scientific manpower resources in the United States -- a charge given to NSF by the Office of Management and Budget in 1959 -- and the surveys of academic institutions are but one component of a four-part national data system that includes surveys of industry, government and non-profit

TABLE 4 PERCENTAGES OF WOMEN SCIENTISTS EMPLOYED FULL-TIME IN SITE VISIT INSTITUTIONS BY SCIENCE FIELD PROFILE, 1976

INSTITUTIONS	TOTAL	ENGINEERING	PHYSICAL SCIENCES	ENVIRON-MENTAL SCIENCES	MATHE-MATICAL SCIENCES	LIFE SCIENCES	PSYCHOLOGY	SOCIAL SCIENCES
I	27.4	6.8	14.1	3.2	9.7	38.6	33.7	21.7
II	26.3	2.1	3.4	4.9	5.8	36.4	25.0	14.2
III	16.0	.9	3.3	3.9	17.2	17.9	20.0	19.8
IV	15.9	1.6	7.0	--	7.0	18.9	9.5	23.1
V	13.9	4.0	6.4	8.8	12.1	15.0	18.6	10.8
VI	10.2	.8	2.9	--	--	17.4	26.3	9.3
VII	8.9	--	3.2	4.5	6.7	12.9	10.8	14.2
VIII	8.8	.9	5.3	4.2	9.7	13.7	21.2	6.7
IX	3.2	1.0	1.1	3.3	6.9	1.3	11.8	9.2
SUMMARY - 9 SITE INSTITUTIONS	15.5	2.2	6.0	4.6	8.4	20.1	21.9	14.9
FIELD SUMMARY - 50 INSTITUTIONS	16.4	3.2	6.0	5.8	9.6	20.5	25.3	19.0

SOURCE: National Science Foundation

organizations as well. Full-time scientists and engineers in academe are thus defined broadly to include "faculty members, postdoctorals, and other professionals (at a level at which the knowledge acquired by academic training equal to a bachelor's degree is essential in the performance of duties) working in science and engineering" including those in research administration.[9]

The problem is that while these numbers do provide an indicator of the science manpower resources in colleges and universities, they mask the dismal reality of women scientists' position in academe. The numbers in themselves are bad enough. But even worse, according to data gathered from the site visit institutions, large numbers of women reported as full-time scientists and engineers on the NSF survey and for HEW compliance hold off-ladder, non-tenured research scientist appointments -- often "soft" money positions funded by extramural grants, not out of general university funds. In all but one case where they are not allowed to serve as principal investigators, these women must find their own grants in order to retain their employment.

We do not deny that research scientist positions provide valuable professional experiences for young scientists, the postdoctorals who are beginning their careers.

But the women we met were not "young scientists", and for them the research position was not a beginning career step. Some had started out as postdoctoral students and remained in research positions because of marriage or family ties, or because they simply preferred to remain rather than move elsewhere. Some started out on a research scientist appointment because it enabled them to work part-time, and merely continued business as usual when they changed to a full-time status.

Identifying the factors which account for the disproportionate number of women in nontenured research positions is not a simple task. For some women, a research position is a voluntary and satisfactory choice. But vestiges of nepotism laws also remain. Many of these women were married to men on the faculty and were denied faculty appointments because their husbands were also employed in the department. Other graduate women who had received their doctorates at the institution where their husbands were employed, found themselves ineligible for faculty ladder positions because of the "we never hire our own policy". This policy, basically not discriminatory, and one that is beneficial in preventing inbreeding, nevertheless in practice severely discriminates against women.

The consequences of nepotism regulations and other hiring policies are exceptionally severe when the university is in an isolated area with limited or no alternatives for employment at other postsecondary institutions or in industry. Lack of mobility prevents married academic women from competing equally on the job market. Denied access to faculty positions, these women are offered research scientist positions as compensation.

Research scientist positions do not carry the prestige or high status of regular faculty positions. Even worse, they hinder professional development if they are held for a long period of time. Rarely are tenured faculty appointments made from among an institution's lecturers or research scientists, and seldom are these people recruited by other universities, particularly if they have held this type of appointment for more than a few years. We found one exception to this situation -- a world famous woman scientist credited with significantly advancing her field had been given a full professorship after serving more than 20 years as a research scientist, long after she had become an acknowledged leader in her field.

A faculty committee invited by the Dean of the Faculty of Arts and Sciences at one of the site visit schools released a

report on the status of women at that campus. In that year, women were 17 percent of the lecturers, 13 percent of the research scientists and 6 percent of the assistant professors. Only two women were tenured professors out of a total of 444. The committee concluded that "women who do hold .... appointments are concentrated in the nontenured ranks and in 'exceptional' or off-ladder appointments". That report was prepared in 1971, and the evidence from our site visits suggests that the pattern found at this institution still prevails. At one site visit institution, there are currently 6 women full professors out of a total of 459 in science and engineering. Nine women are at the associate rank out of 165. The greater proportion (33 percent) are assistant professors and research scientists. At another institution, women comprise almost 25 percent of the total academic staff. They account for 42 percent of the instructor and associate adjunct staff, 66 percent of the library staff (which is classified as an academic discipline at this institution) but only 14 percent of the assistant, associate and full professor ranks combined. At still another institution, women comprise 50 percent of the lecturer staff but there are only two women full professors out of a total of 290. The absolute numbers of women scientists may be increasing in some cases, but the percentages are still small and they are still found in the lower ranks and untenured positions of academe.

Statistics are used by the courts both as a measure of discrimination and as a measure of compliance. When statistical evidence indicates that there has been a pattern of discrimination,

the burden of proof is shifted to the employer who must demonstrate that there is and has been no discrimination, that the job criteria are genuinely related to the job and that employment practices and policies do not have and have not had a discriminatory effect. Departments cannot deny statistical evidence of discrimination on the basis that no women apply. Underutilization raises a presumption of discrimination under Executive Order 11246 and Title VII since an institution's reputation for being discriminatory may have discouraged qualified women from applying for positions in the first place.

The problem is, we must look beyond the numbers. Aggregate statistics simply do not tell the whole story. Institutional researchers, university administrators, department chairs and federal policy-makers should consider focusing less on the numbers of women scientists employed or the numbers of women graduate students enrolled and more on who and where in the system these people are. Otherwise, the situation of women in academe will not change. As it is, the prospects for significantly increasing the number of women scientists in higher education institutions in the future are dim.

The booming labor market for Ph.D.s has ended and hiring in academe has slowed considerably. Many departments are 80 or 100 percent tenured and, as a result, are turning more and more to limited term contract appointments as a vehicle for bringing in new blood and maintaining vitality. These appointments are as defined, limited contracts, and the possibility of being appointed to the permanent, tenured faculty is slim. At

the same time, women graduate students, as well as potential graduate students, like their male peers, have responded to the depressed labor market in academe. Many more of the women we met were seeking master's degrees instead of Ph.D.s because of the poor academic employment situation and, in some areas such as engineering, where they are in great demand at the bachelor's level, they were foregoing graduate education completely to take positions in industry.

Under Executive Order 11246, each employer must analyze the workforce and determine if there is underutilization of women or minorities or both. To make this determination, availability data is used. That is, for example, women presently earn between 16 and 18 percent of the doctorates in the biological sciences, 6 to 8 percent of the doctorates in the physical sciences and 2 percent in engineering. Studies indicate that 91 percent of women with doctorates work.[10] Thus, any department with substantially less than 16 percent women biological scientists, 6-8 percent women physical scientists or 2 percent women engineers is presumed to be underutilizing available women. But the implications are clear. Unless the pool of available women Ph.D. scientists increases significantly, the number employed in academe will not increase, and the pool of available Ph.D. women will not continue to increase unless higher education makes a more conscientious effort not just to increase their numbers according to affirmative action goals, but to provide them with visible, respectable and prestigious permanent positions on the tenured faculty, or at least an equal opportunity to attain these positions.

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9 National Science Foundation. Survey of Scientific and Engineering Personnel Employed at Universities and Colleges, January 1976. NSF Form 724 (11-75) Instructions and Definitions.

10 Astin, H.S. Career profiles of women doctorates. In Rossi, A.S. and Calderwood, A. (Eds.) Academic Women on the Move. New York: Russell Sage Foundation, 1973.